ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

December 28th, 1954
Vol. 12...No. 10

Dear Sir:

A new nonprofit organization called the Fund for Peaceful Atomic Development, Inc., has now been organized in Detroit. It has received $150,000 from the Ford Foundation, half immediately and the balance contingent on the Fund raising additional sums from other sources. President of this Fund is Walker L. Cisler, who is president of the Detroit Edison Co. Mr. Cisler is also president of the Atomic Industrial Forum, Inc., New York trade organization of firms interested in industrial applications of atomic energy. The Fund will work for peaceful development of atomic energy on an international basis. Its early operations, according to a spokesman for the Fund, will be to arrange for leading scientists, industrialists, and other individuals from foreign countries to visit the U.S., and to survey non-secret aspects of industrial atomic energy work. William C. Foster, former administrator of the Economic Cooperation Administration, is vice-president; Oscar M. Reubhausen, chairman of the atomic energy committee of the New York Bar Association, is secretary; and Joseph M. Dodge is treasurer.

Exports from South Africa, of material prescribed under the atomic energy law of S.A., including uranium and thorium, for the first nine months of 1954, totaled $25,571,812. This was approximately $20 million greater than in the like period of 1953. With uranium recovery plants now in operation at seven gold mines, material worth over $2.5 million was exported in the month of September alone. This volume is expected to appreciably increase when the eighteen other gold mines, which are in various stages of uranium plant planning and/or construction, start to ship recovered values. (Other RAW MATERIAL news, p. 5 this LETTER.)

A course in clinical techniques of radioisotope use at the technician level is being contemplated for the Fall, 1955, by Oak Ridge Institute of Nuclear Studies, Oak Ridge. Such a course would be in addition to those regularly scheduled for 1955 by the Institute (page 2 this LETTER). The Institute is asking for inquiries and suggestions as to the need and conduct of such a course. Dr. Ralph T. Overman, who is chairman of the Special Training Div., of the Institute (P.O. Box 117, Oak Ridge, Tenn.) should be addressed in this matter.

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ATOMIC ENERGY BUSINESS REPORTS...

CONTRACT AWARDED FOR "PORTABLE" NUCLEAR POWER PLANT:- A lump-sum contract to design, build, and test operate a prototype "package" nuclear power plant for military use has now been awarded by the USAEC to the American Locomotive Co. American Locomotive's low bid was $2,096,753 for this prototype, designated Army Package Power Reactor, and which will have a capacity of about 2000 kw. of electricity. Other bids, ranging to a maximum of $6,900,000, were made by American Machine & Foundry, N.Y.; Arrowhead Constructors (joint venture of Donovan Construction Co., St. Paul; Winston Bros. Co., Minneapolis; C.F. Lytle, Sioux City; Green Construction Co., Des Moines; & Missouri Valley Constructors, Inc., Leavenworth, Kans.); Babcock & Wilcox & Vitro Corp. of America, N.Y. (jointly); Bethlehem Steel, Quincy, Mass.; Combustion Engineering, N.Y.; Curtiss-Wright, Woodridge, N.J., & Ralph M. Parsons, Los Angeles (jointly); Ford Instrument Co., Dearborn, Mich., Foster Wheeler Corp., N.Y.; General Electric Co., Schenectady; Glenn L. Martin Co., Baltimore; Kidde Industries, Garden City, L.I.; Kuljian Corp., Phila; LeTourneau-Westinghouse & Fluor Corp. (jointly); Merritt-Chapman & Scott Corp., N.Y.; North American Aviation, Downey, Calif.; Raymond Concrete Pile Co., N.Y.; Stearns-Roger Man. Co., Denver.

MAJOR OAK RIDGE PROJECT CONCLUDED:- With the completion at Oak Ridge, Tenn., by Maxon Construction Co., of the K-33 addition to the gaseous diffusion plant there (producing uranium-235), surplus material and equipment valued at approximately $3 million will be sold at auction January 18th and 19th. (The Effron Corp., Cincinnati, Ohio, will conduct the auction for Maxon. Information on items to be sold may be obtained from Effron.)

NUCLEAR FIRM RETAINED BY MUTUAL FUND:- National Securities and Research Corp., New York, has now retained the firm of Nuclear Consultants, Inc., as scientific consultants and technical advisers in the atomic energy and electronics fields. Nuclear Consultants will examine the activities of corporations whose securities are in the portfolios of the National Securities Series of mutual investment funds, and analyse their long and short term potential in the field of atomic energy and electronics. Assets of National Securities and Research Corp. now total more than $200 million. (Nuclear Consultants, with offices and laboratories in St. Louis and New York, recently sold a substantial interest to TelAutograph Corp., New York; this LETTER, 11/2/54, p. 2).

FINANCIAL NOTES:- Baird Associates, Inc., Cambridge, Mass., manufacturer of equipment in the nuclear and electronic fields, has now sold privately 51,590 shares of new common stock at $10 a share. This increases the firm's capitalization to 144,890 shares..... Analyses of firms active in the nuclear field have been prepared by Thomson & McKinnon (11 Wall St., NYC) on Fairchild Engine & Airplane Corp., and Bache & Co. (36 Wall St., NYC) on Babcock & Wilcox.

ATOMIC ENERGY EDUCATIONAL ACTIVITY...news & notes...

FELLOWSHIP CREATED IN NUCLEAR ENGINEERING:- A $4000 annual fellowship in nuclear engineering has now been established at Case Institute of Technology, Cleveland, by General Dynamics Corp., New York. For Case graduates only, first award will be in February or March, 1955, and will be effective in the academic year starting Sept., 1955.

SCHEDULE FOR 1955 AT OAK RIDGE INSTITUTE ESTABLISHED:- The three types of courses which Oak Ridge Institute of Nuclear Studies, Oak Ridge, will offer during 1955 include: (1) Basic Course in Technique of Using Radioisotopes:- Jan. 10-Feb. 4; Feb. 21-Mar. 18; May 2-May 25; June 6-July 1; July 11-Aug. 5; Aug. 15-Sept. 9. (2) Industrial Uses of Sealed Radioactive Sources:- Apr. 18-29. (3) Basic Survey Medical Course:- May 16-21. Of interest to those in countries other than the U.S. who make use of radioisotopes, is the Basic Course to be given May 2-25, as above. This May 2-25 course is a special session solely for foreign participants. It is identical with the training given U.S. participants, and its objectives are the same, i.e., to enable research workers and technicians to gain sufficient facility in the use of radioisotopes to apply this technique in their own work. Inquiries concerning courses at the Institute should be directed to P.O. Box 117, Oak Ridge, Tenn.

NEW PRODUCTS, PROCESSES & INSTRUMENTS...for nuclear lab & plant...

FROM THE MANUFACTURERS:- Carbon-14 labeled aniline, an organic intermediate, has now been made available by this firm. It is in addition to benzene, benzaldehyde, toluene, and benzoic acid which were previously supplied. The aniline-C-14 should be of use to workers studying the mechanisms of certain organic reactions, solvent partition, and in tracing various industrial processes. It is available at one millicurie per millimole in three package sizes: 1; 0.5; and 0.1 millicurie.--Nuclear Instrument & Chemical Corp., Chicago 10, Ill.

NOTES: Licensed to manufacture nuclear measurement instruments in the U.S., under the patents of Frieseke & Hoepner (Germany), Curtiss-Wright Corp. will now offer such instruments through its electronics division in Carlstadt, N.J. These instruments will include a combined scaler and ratemeter for use in conjunction with G-M counter tubes, proportional and scintillation counters; a pocket-size instrument for measuring the intensity of gamma and beta radiation and X-rays; and a lightweight probe-type instrument consisting of a high intensity counter tube, amplifier, and headphone, powered by a single flashlight cell. Curtiss-Wright also plans to process and distribute radioisotopes, and to offer consultation services in connection with the products it will distribute.

Heavily leaded observation windows, for use in connection with the USAEC's aircraft nuclear propulsion facility (National Reactor Testing Station, Arco, Idaho) and developed to specifications of Argonne National Laboratory (Lemont, Ill.) are being furnished the facility by Corning Glass Works. (The company is supplying the windows under a contract held by Utah Construction Co., Salt Lake City, for the initial portion of the facility.) Glass of three different densities is used in these windows which are actually a number of glass units assembled in a steel frame. There is glass with a density of 3.3; a density of 2.7; and a density of 6.2, this last said to be one of the densest melts ever produced. A typical window, as assembled, may be 6-ft. thick, have a rectangular dimension of 6x8-ft., and weigh 12-tons.

The English firm of Isotope Developments, Ltd. (Beenham Grange, Aldermaston Wharf, Berks.), have now added to their line of scintillation phosphors a new high-activity scintillator trade-named Pamelon. This is a plastic material which is said to give a good light response and to provide an overall phosphor comparable with many of the present crystalline materials now used for that purpose. The firm will supply it in bulk or machined to order. The firm states that the energy yield and rapid decay time of Pamelon, with its relatively low cost, make it quite suitable for alpha, beta, and gamma rays, and X-rays. (The firm's other scintillators include sodium iodide capsules, and zinc and cadmium sulphide.)

NEW BOOKS & OTHER PUBLICATIONS...on nuclear subjects...

Some Effects of a Lethal Dose of X-Radiation Upon Memory. Work done by S. J. Kaplan, and G. Gentry, U.S. Air Force School of Aviation Medicine, Randolph Fld., Tex. 18 pages. (Microfilm, $2.00; photocopy, $2.75.)..... Effects of Whole-Body Radiation in Guinea Pigs under Simulated Flying Conditions. Work done by E.B. Konecci and W.F. Taylor, of same organization. 13 pages. (Microfilm, $2.00; photocopy $2.75.). --Library of Congress, Publication Bd. Proj., Wash. 25, D. C.

Measurement of the Build-Up of Cobalt-60 Gamma Radiation in Iron & Lead. Report of investigations conducted (Mar. '54) by C. Garrett and G.N. Whyte, National Research Council of Canada. 19 pages. --Nat. Res. Council of Canada, Ottawa, Ontario, Canada. (25¢).

Properties and Uses of Radioisotopes. Reprint of paper delivered by G.D. Calkins (Battelle Memorial Institute, Columbus, O.) before symposium on radioactivity, isotope and tracer techniques --Battelle Memorial Institute.

The Probable Impact of Atomic Energy on the Petroleum Industry. Reprint of talk by Robert E. Wilson, chairman, Standard Oil Co. (Ind.), at atomic energy conference of National Industrial Conference Board, New York, Oct. 14, 1954. --Petroleum Institute of America, 50 W. 50th St., New York, N.Y.

Progress Toward the Atomic Age. Paper delivered by John R. Dunning, Dean of Engineering, Columbia Univ., at annual symposium, Assoc. of Cons. Chemists & Chem. Engineers, Oct. 26, 1954. --ACC & CE, 50 W. 41st St., New York 17. ($1.00)

IONIZING RADIATION...in industry & medicine...

MEDICAL RESEARCH SHOWS PROTECTIVE FACTORS:- Pantothenic acid has been found to afford significant protection to mice against the injurious effects of radiation from radioactive phosphorous, according to Dr. Camillo Artom, Bowman Gray School of Medicine (Winston-Salem, N.C.). Results obtained by Dr. Artom in this and other investigations indicate that in addition to this vitamin, pyridoxine, or the combination of folic acid and vitamin B-12, increase significantly the survival of vitamin deficient mice that have been injected with compounds containing radioactive phosphorous. Dr. Artom points out that while it is unlikely shortages of these vitamins will develop in humans under ordinary conditions, the radiation syndrome and the administration of large amounts of antibiotics might lead to such a deficiency. In that case (he states) there would be a definite indication for those vitamins which have demonstrated beneficial action. Choline, vitamin K, biotin, and p-aminobenzoic acid are vitamins which have not shown beneficial effects, Dr. Artom notes.

INDUSTRIAL RADIATION EXPOSURE PROBLEMS ARE CRYSTALLIZED, SPEAKER SAYS:- Ten years of experience in radiation protection on an industrial scale has crystallized the problems still to be solved by research and development, Herbert M. Parker, director of the radiological sciences department for General Electric at the USAEC's Hanford Works, recently told the Radiological Society of America, meeting in Los Angeles. Dr. Parker, who has been working on radiation protection since the beginning of the U.S.'s atomic efforts twelve years ago, said the routine day-to-day protection at Hanford (G-E operated) is now part of the manufacturing department job there; this has freed the radiological sciences department to work on research and development. Some of the problems still to be solved, Dr. Parker noted, include: What is the exact nature of the interaction of radiation on living beings in general, and man in particular? If more of this is known, what new realistic limits of exposure can be set up for the various kinds of radiation, and for a wide variety of radioactive substances? How can internal exposure, as deposits of radioactive material on lung tissue, be determined more precisely? How can radioactive materials, on an industrial scale, be completely contained at the source; and if they can't, how much of the protection job should be done by high-standard air cleaning? What is to be done with the vast quantities of radioactive industrial waste that will be produced in the future? Can simpler, faster, and more effective industrial plant decontamination methods be developed, and what plant changes would expedite this? How can irradiated materials be safely and economically transported by processing locations?

COSTS PRESENTED ON IONIZING RADIATION PROCESSING:- A cost analysis made by Applied Radiation Corp. (Walnut Creek, Calif.) now shows that using an electron linear accelerator (of this firm) as a radiation source, pre-cut meats in packages up to 0.7-in. thick can be pasteurized by such radiation at a cost of $1.06 per ton, thereby increasing the shelf life of such meats under normal refrigeration five-fold. Applied Radiation, a firm which advocates the use of a machine source for commercial radiation (as cheaper than radiation produced by radioactive materials) feels that while complete sterilization can be realized with its machines at a cost of 2¢ per pound, such complete sterilization must await further research since objectionable flavors, odors and discoloration result from the higher dosage..... At the Univ. of Michigan, a development has been an ionizing radiation plant capable of treating some 250 bushels of potatoes per hour. The plant, designed at the Fission Products Laboratory of the University, can do such irradiation at an estimated 6¢ per bushel. After being irradiated, the potatoes can be stored for over a year (at 50-deg. F.) without sprouting, as compared to untreated potatoes which usually sprout 6 months from being harvested. According to Lloyd Brownell, supervisor of the laboratory, a plant to do such radiation might be built for some $50,000; operating costs would be $40,000 a year.

STATE HEALTH OFFICIALS DESIRE RADIATION DATA:- A recommendation that a radiation control program be set up in each state, and access to classified nuclear data granted, were resolutions adopted at the recent meeting in Washington of the Association of State Health Officers. Interest was shown in the use, storage, and disposal of radioactive materials.

ATOMIC PATENT DIGEST...latest grants made...

PRIVATE ORGANIZATIONS:- Neutron sensitive tube. In such atomic-particle-sensitive tubes, an evacuated envelope, having in combination, a composite photocathode consisting of a fluorescent layer having distributed throughout this layer elements reactive to atomic particles, a light transparent separating layer, and a photo-electric layer. This light transparent layer is no thicker than 0.15 millimeter. Accelerating means and an electron reactive screen, spaced apart from the photocathode, are also provided. U.S. Pat. No. 2,697,181 issued Dec. 14th, 1954 to Edward E. Sheldon, New York, N.Y.

GOVERNMENT ORGANIZATIONS:- Electrostatic amplifier. Comprises (in part) a resonant circuit, including a capacitor and an inductor having a midtap, a rectifier connected between each end of the inductor of this resonant circuit, and one of these output terminals, with the other output terminals connected to this inductor midtap. A coil is inductively coupled to the inductor of this resonant circuit, with a constant voltage and fixed frequency alternating current power supply means connected across this coil, whereby this resonant circuit is inductively energized. U.S. Pat. No. 2,696,530 issued Dec. 7th, 1954; assigned to United States of America (USAEC). (Inventor: Quentin A. Kerns.)

Dual circuit electrical safety device. Comprises (in part) an insulating member, a pair of electrically conducting leg elements secured to this insulating member and spaced from it, with one of the leg elements of resilient material and normally tending to diverge from the other in opposition to an interconnecting fuse link. This interconnecting fuse link is also part of a second circuit, which is interrupted simultaneously with interruption of the first circuit, upon weakening of the fuse link and divergence of the resilient leg member from the other leg members. U.S. Pat. No. 2,696,539 issued Dec. 7th, 1954; assigned to United States of America (USAEC). (Inventor: Edward W. Peterson.)

RAW MATERIALS...prospecting, mining & marketing...

UNITED STATES:- Standard Uranium Corp., headed by Joseph W. Frazier, (former associate of Henry J. Kaiser) now reports that its property is "in ore". Mr. Frazier states that with the delivery of additional mining equipment (expected in January) it is believed that the output of the firm's San Juan County (Utah) mines can be raised to 500 tons of uranium ore per day..... Ute Uranium Co. has completed 21,678 feet of core drilling showing blocked out ore bodies, according to a report by Allen Simpson, engineer for Ute. An estimate has been made of over $225,000 as the value of the two ore bodies drilled, which are in the Bishop Canyon and Slick Rock area (Colo.)..... Rocky Mountain Uranium Corp., headed by Critchlow Parson, Dallas oil operator, has now reported that reserves totalling 30,000 tons of ore have been indicated by tunneling and drilling on the firm's Rainy Day claims.

CANADA:- At Lorado Uranium Mines' Alco property, in the Beaverlodge area, a continuous ore length of 360-ft. has been indicated, according to K. S. Oliver, company president. Preliminary mill tests on the ore from underground workings at the property have been encouraging to management, with first tests indicating recoveries of 87-88%; of this, a recovery of 43% of the contained uranium values was obtained by simple water leaching..... At Rix Athabasca Uranium Mines, with the Smitty ore section now in profitable operation, it is proposed to complete the development of other known ore sources so that either the present output can be increased for possible sale to Eldorado Mining & Refining, or else place sufficient ore in sight to justify construction of a concentrator on the Rix property..... Good headway is now being made at Rexpar Uranium in its early underground work on its "A" orebody, the second of two ore deposits the company is bringing under development at its mine operation in the Kamloops area of southern British Columbia.

Sincerely,

The Staff,
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